

REMARKS

Initially, Applicants and the undersigned wish to express their gratitude to the Examiner for the telephone interview on April 7, 2004. The interview was considered to be very productive in advancing the prosecution of this application.

Claims 1-10 have been pending in this application and were rejected in Paper No. 6. By this Amendment, claim 1 has been amended and new claims 11-19 have been added to further emphasize the structural and functional features of the invention as suggested by the Examiner in our telephonic interview on April 7, 2004. The amendment to claim 1 and new claims 11-19 are fully supported by the specification and the original claims. No new matter has been added. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the following remarks and the aforementioned amendments.

REJECTIONS UNDER 35 U.S.C. §§ 102 and 103

Claims 1-3, 5-7 and 9-10 is rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Scholz (British Patent No. 1215064).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Scholz in view of Japan '338.

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Scholz in view of Metzger.

Applicants respectfully submit that these rejections are traversed in light of the amendment to claims 1 and 10.

As amended, claims 1 and 10 recite that the “inner surfaces of the base conduct the coolant to flow radially inwardly in order to exit the pool as coolant overflows from the pool and is guided from the base to the grinding stone means”.

As discussed during the interview, coolant is temporarily retained in the (preferred exemplary) coolant pool (14). In order to exit or overflow from the coolant pool, it travels radially inwardly (along projection 22) to reach the edge thereof so that it thereafter can be guided radially outwardly by lower inclined surface 28 from the coolant pool. See Applicants’ specification at page 10, lines 4 to 15. As such, the coolant can not immediately escape radially outwardly because the coolant pool 14 opens radially inwardly. It is not until the pool 14 overflows that coolant is guided onto the grinding stone means 6 via the lower inclined surface 28. Scholz fails to teach or suggest this feature.

According to Applicants, Scholz discloses a wheel (1) that has a cooling water chamber (7) and connection passages (6) connected to the cooling water chamber (7). In Applicants’ view, in the grinding wheel of Scholz, the coolant flows into the annular cavity (7) through the opening (8) and thereafter immediately flows radially out from the annular cavity (7) through the radially oblique connecting passages (6). See Scholz’s specification from page 1, line 86 to page 2, line 5. As such, Scholz fails to suggest wall structure defining a coolant pool where coolant is temporarily retained, and conducted radially inwardly to where it overflows and departs the pool. Instead, the coolant of Scholz flows continuously radially outwardly through passages 6.

For these reasons, claims 1 and 10 are urged as patentably distinguishing over Scholz. The rejections as to these independent claims, and dependent claims 2, 3, 5-7, and 9, is overcome.

Additionally, Applicants submit that the present invention as set forth in claims 4 and 8 is not made obvious by Scholz singly, or in any combination with JP '338 or Metzger. Neither JP '338 nor Metzger remedies the above-described deficiencies of Scholz with respect to claims 1 and 10. Therefore, claims 4 and 8 likewise are patentably distinguishable over Scholz, JP '338 and Metzger. As such, Applicants respectfully urge that the asserted rejections over the alleged combinations of Scholz, JP '338 and Metzger are overcome, and withdrawal of these rejections likewise is requested.

With regard to claims 11-19, none of Scholz, JP '338 and/or Metzger teach or suggest the structure as claimed in new independent claim 11. Therefore, it respectfully is submitted that claims 11-19 likewise patentably distinguish over the cited art.

CONCLUSION

Applicants respectfully submit that this Amendment and the above Remarks obviate the outstanding objections and rejections in this case, thereby placing the application in condition for immediate allowance. Allowance of this application is earnestly solicited.

If any fees under 37 C.F.R. § 1.16 and 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033773M031.

Respectfully submitted,
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LISTING OF CLAIMS

1. (Currently Amended) A grinding wheel comprising an annular base and a grinding stone means mounted on the under surface of the base, wherein

the base has inner surfaces that form a coolant pool which is open inward in a radial direction when coolant is provided into the base, and

the inner surfaces include surfaces that conduct the coolant to flow radially inwardly in order to exit the pool as coolant overflows from the pool and is guided from the base to the grinding stone means.

2. (Original) The grinding wheel of claim 1, wherein the coolant pool extends continuously in a circumferential direction.

3. (Original) The grinding wheel of claim 1, wherein the coolant pool is defined between an upper inclined surface which inclines downwardly outward in the radial direction and a projecting surface which extends substantially horizontally and outward in the radial direction below the upper inclined surface.

4. (Original) The grinding wheel of claim 1, wherein a plurality of communication notches or communication holes which communicate with the coolant pool from the top surface of the base are formed at predetermined intervals in the circumferential direction.

5. (Previously Presented) The grinding wheel of claim 1, wherein the base has a lower inclined surface which inclines downwardly outward in the radial direction below a projecting surface.
6. (Original) The grinding wheel of claim 1, wherein the grinding stone means is composed of a plurality of grinding stones which extend in an arc form in the circumferential direction and are spaced apart from one another in the circumferential direction.
7. (Original) The grinding wheel of claim 1, wherein a plurality of coolant guide grooves which extend from the coolant pool to the grinding stone means are formed in the inner surface and the under surface of the base at predetermined intervals in the circumferential direction.
8. (Original) The grinding wheel of claim 7, wherein the coolant guide grooves extend from the coolant pool toward the grinding stone means and are inclined toward one side in the circumferential direction.
9. (Original) The grinding wheel of claim 7, wherein the grinding stone means is composed of a plurality of grinding stones which extend in an arc form in the circumferential direction and are spaced apart from one another in the circumferential direction, and the coolant guide grooves are formed correspondingly to the grinding stones.
10. (Currently Amended) An apparatus for use with a grinding stone means to provide a grinding wheel, said apparatus comprising:

an annular base;

means, located on an under surface of the base, for mounting a grinding stone means; and

means, located at an inner surface of the base, for defining a pool for receiving coolant therein, the means defining the pool opening inwardly with respect to a radial direction of the annular base, wherein

the means for defining a pool has inner surfaces that conduct the coolant to flow radially inwardly in order to exit the pool as coolant overflows from the pool and is guided to a grinding stone means.

11. (new) A grinding wheel for use with a mounting flange and an additional member receivable within the mounting flange, the mounting flange having a coolant passage therein, the additional member having grooves and holes in communication with each other and in communication with the coolant passage when the additional member is received within the mounting flange, said grinding wheel comprising

an annular base having a top surface, inner surfaces and an under surface, and

grinding stone means provided at the under surface of the base,

wherein the top surface of the base has notches for receiving coolant from the holes of the additional member when said grinding wheel is used with the mounting flange and the additional member,

wherein the inner surfaces define a coolant pool that prevents coolant received therein from flowing radially outwardly from the pool,

wherein the coolant pool is in communication with the notches to retain coolant entering the pool through the notches, and

wherein the inner surfaces further guide coolant that overflows from the coolant pool to the grinding stone means.

12. (new) The grinding wheel of claim 11, wherein the coolant pool extends continuously in a circumferential direction.

13. (new) The grinding wheel of claim 11, wherein the coolant pool is defined between an upper inclined surface which inclines downwardly outward in the radial direction and a projecting surface which extends substantially horizontally and outward in the radial direction below the upper inclined surface.

14. (new) The grinding wheel of claim 11, wherein the notches are located at predetermined intervals in the circumferential direction in the top surface of the base.

15. (new) The grinding wheel of claim 11, wherein the base has a lower inclined surface which inclines downwardly outward in the radial direction below a projecting surface, the lower inclined surface guiding overflow coolant radially outwardly toward the grinding stone means.

16. (new) The grinding wheel of claim 11, wherein the grinding stone means is composed of a plurality of grinding stones which extend in an arc form in the circumferential direction and are spaced apart from one another in the circumferential direction.

17. (new) The grinding wheel of claim 11, wherein a plurality of coolant guide grooves extend from the coolant pool to the grinding stone means and are formed in the inner surface and the under surface of the base at predetermined intervals in the circumferential direction.

18. (new) The grinding wheel of claim 16, wherein the coolant guide grooves extend from the coolant pool toward the grinding stone means and are inclined toward one side in the circumferential direction.

19. (new) The grinding wheel of claim 16, wherein the grinding stone means is composed of a plurality of grinding stones which extend in an arc form in the circumferential direction and are spaced apart from one another in the circumferential direction, and the coolant guide grooves are formed correspondingly to the grinding stones.